

Paper Reference(s)

XXXX/XX

Edexcel GCSE
Manufacturing (Double Award)
Engineering (Double Award)
Unit 3: Application of Technology
Paper 2: Food and Drink, Biological and
Chemical

Time: 1½ hours

Materials required for examination

Notes and sketches collected during
your Pre-release research.
Ruler, Pen, Pencil, Rubber.

Items included with question papers

Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.

Check that you have the correct question paper.

Answer **ALL** the questions. Write your answers in the spaces provided in this question paper.

Indicate which questions you are answering by marking the box ([X]).

If you change your mind, put a line through the box ([X]) and then indicate your new question with a cross ([X]).

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).

There are 13 questions in this question paper. The total mark for this paper is 110.

There are 18 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

Quality of written communication will be taken into account in the marking of your responses to Questions 7, 9, 10, 11, 12 and 13. These questions are indicated with an asterisk. Quality of written communication includes clarity of expression, the structure and presentation of ideas and grammar, punctuation and spelling.

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Answer ALL questions in Section A and Section B

SECTION A

Answer ALL questions in this section. Write your answers in the space provided.

1. All of the products listed below belong to a manufacturing sector.

(a) Tick two boxes below where the products belong to the **food and drink** sector

Products	Tick two boxes below
Sun-tan lotion	
Tomato ketchup	
Calculator	
Orange juice	
Street maps	
Football shin pads	

(2)

(b) Tick two boxes below where the products belong to the **biological and chemical** sector

Products	Tick two boxes below
Filing cabinets	
Disinfectant	
Fuel injection systems	
Dried yeast	
High energy snack bar	
Leather wallet	

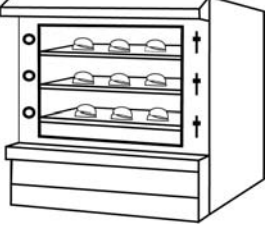
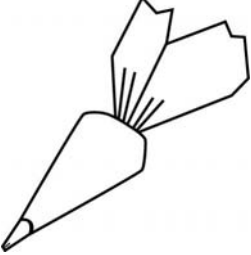
(2)

(Total 4 marks)

2. The tables below show some equipment used in the manufacture of products.

(a) Complete Table 1 by naming each piece of equipment.

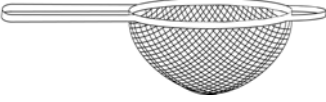
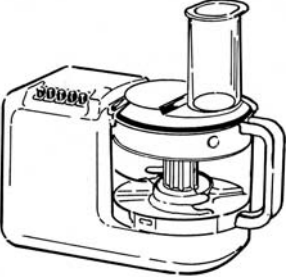
Table 1

Equipment	Equipment name	Use
		<p>A piece of equipment used to bake bread, cakes, biscuit mixtures etc.</p>
		<p>Used to decorate pastries and cakes with whipped dairy cream, fill jam tarts and other similar uses.</p>

(2)

b) Complete Table 2 by explaining what each piece of equipment is used for.

Table 2

Equipment	Equipment name	Use
	<p>Sieve</p>	
	<p>Food processor</p>	

(4)

(Total 6 marks)

3. Draw a straight line to link each **Term** listed below to the correct **Key Area**.

Each Key Area can be used more than once.

Term

Key Area

Preservative

Modern materials

Computer-integrated
manufacture (CIM)

Internet Sites

Control technology

Stabiliser

Modified starch

Information and Communications
Technology (ICT)

Process Control

Spreadsheets

(7)

(Total 7 marks)

4. Packs of bread rolls belong to the food and drink sector.

(a) Name **one** other product from this sector, apart from packs of bread rolls, that utilises control technology and modern materials in its manufacture.

..... (1)

(b) (i) State **one** modern material used in the manufacture of the product you named in 4(a).

..... (1)

(ii) Explain **two** benefits to the **manufacturer** of using this material.

Benefit 1

Benefit 2

(4)

(c) (i) State **one** type of control technology used in manufacturing.

..... (1)

(ii) Explain **one** advantage to the **manufacturer** of using control technology.

..... (2)

(iii) Explain **one** disadvantage to the **manufacturer** of using control technology.

..... (2)

(Total 11 marks)

5. Computer-aided design (CAD) and Computer-aided manufacture (CAM) are both used by manufacturers of food, drink, biological and chemical products.

(a) Describe **one** use of CAM when manufacturing products.

.....
.....
(2)

(b) (i) State **two** benefits to the **consumer** of using CAM when manufacturing.

1.....
2.....
(2)

(ii) Explain **two** benefits to a **manufacturer**, of using computer-aided design (CAD).

Benefit 1.....
.....
(2)

Benefit 2.....
.....
(2)

(Total 8 marks)

6. Communications technologies is widely used by manufacturers.

(a) Explain the term 'communications technology'.

.....
.....

(2)

(b) Mobile phones and email are examples of communications technologies.

(i) Name **one** other example of communications technology.

.....

(1)

(ii) Name the traditional communications method this has replaced.

.....

(1)

(iii) Explain **one** advantage to the manufacturer of using this replacement communications technology.

.....
.....

(2)

(vi) Explain **one** disadvantage to the manufacturer of using the replacement communications technology.

.....
.....

(2)

(Total 8 marks)

7. Computer-integrated manufacturing systems (CIM) are used in the manufacture of food and drink, biological and chemical products.

(a) Describe **one** main feature of a CIM system

.....
.....
.....
.....

(2)

(b) Explain two benefits to the manufacturer of using CIM in the production of food and drink, biological and chemical products.*

Benefit 1

.....
.....
.....

Benefit 2

.....
.....
.....

(4)

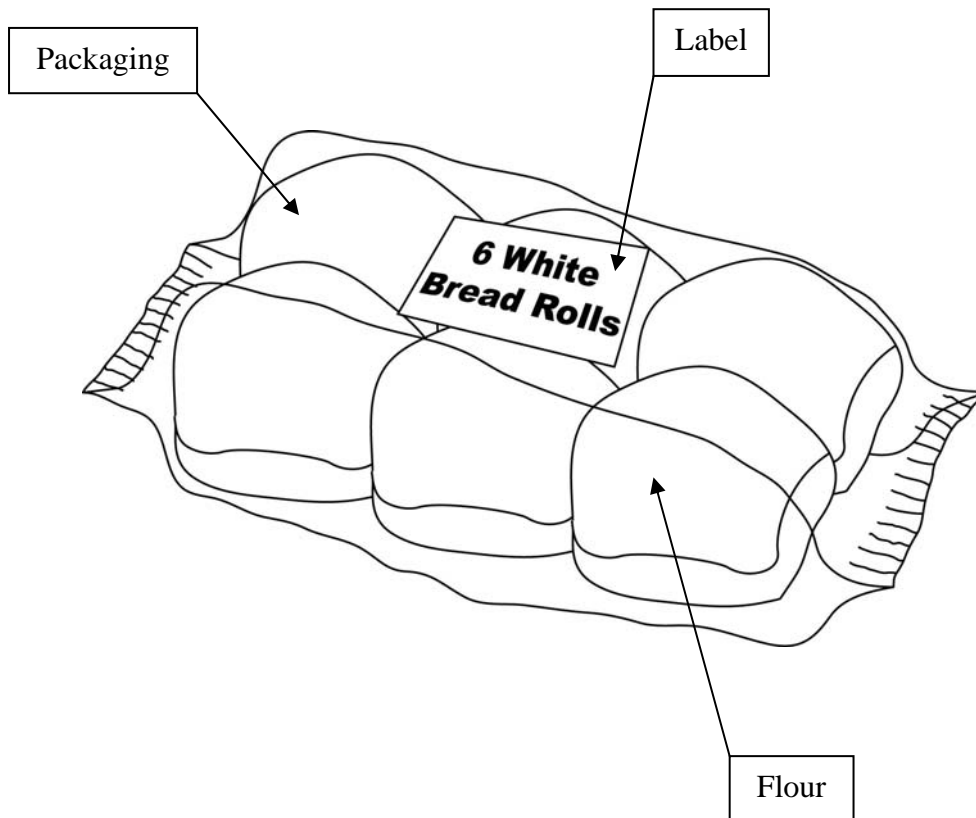
(Total 6 marks)

TOTAL FOR SECTION A: 50 MARKS

SECTION B

Answer ALL questions in section B with reference to the manufacture of mass produced packs of bread rolls. Write your answers in the spaces provided.

The diagram below shows a pack of bread rolls.



8. Describe, using notes and sketches:

(a) the function of the packaging.

Packaging

(3)

(b) the function of the flour.

Flour

(3)

(c) the function of label

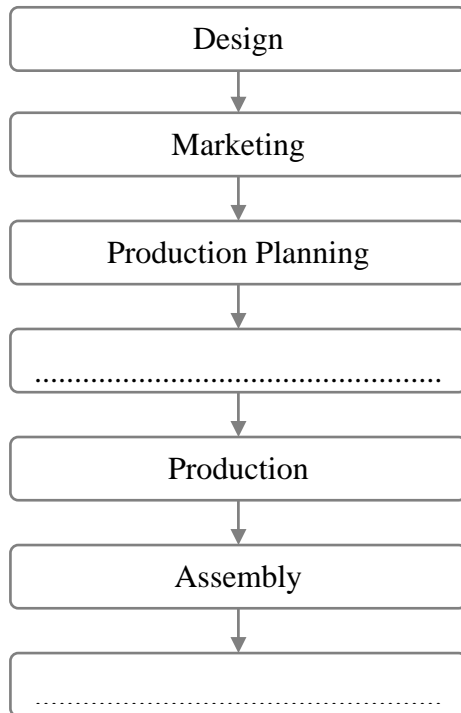
Label

(3)

(Total 9 marks)

9. (a) The incomplete flow diagram below indicates some of the main stages in manufacturing the packs of bread rolls.

(i) Complete the flow diagram by writing the two missing main stages in manufacturing packs of bread rolls.



(2)

(ii) State the stage where the bread roll dough is shaped round.

Stage

(1)

10. Certain materials are used in the manufacture of packs of bread rolls.

(a) (i) Apart from flour and emulsifiers, state a specific material commonly used in the manufacture of the packs of bread rolls.

.....
(1)

(ii) Explain how the use of emulsifiers has helped to improve the characteristics of the packs of bread rolls.

.....
.....
.....
(2)

(b) Explain why high speed dough mixing (Chorleywood Bread Process) is a suitable process for the production of packs of bread rolls.

.....
.....
(2)

(c) State **two** production processes other than high speed dough mixing (Chorleywood Bread Process) used in the manufacture of packs of bread rolls.

Process 1.....
Process 2.....
(2)

(d) Explain how the use of modern materials has made packs of bread rolls appeal to supermarket shoppers.*

.....
.....
.....
.....
.....
.....
(3)

(Total 10 Marks)

11. Quality control is used in the manufacture of packs of bread rolls.

(a) Explain the term “quality control”.

.....
.....

(2)

(b) (i) Describe **one** quality control procedures used at the production stage of the manufacture of packs of bread rolls.

.....
.....
.....

(2)

(ii) Explain **one** benefit to the manufacturer of applying the type of quality control procedure named in (b)(i).

.....
.....
.....

(2)

(iii) Explain **one** benefit to the consumer of applying the type of quality control procedure named in (b)(i).

.....
.....
.....

(2)

(c) Explain the difference between open-loop and closed-loop quality control systems.*

.....
.....
.....
.....
.....
.....

(4)

(Total 12 marks)

12. Information and communications technology (ICT) plays an important role in the manufacture of packs of bread rolls.

(a) (i) Describe **one** use of ICT in the **design** stage of the packs of bread rolls

.....
.....

(2)

(ii) State **two** benefits of the use of ICT at the **design** stage.

1.....

.....

2.....

.....

(2)

(b) (i) Describe **one** use of computer control in the packaging and dispatch stage of manufacturing the packs of bread rolls.

.....
.....

(2)

(ii) Explain **two** advantages of using computer control at the packaging and dispatch stage.*

Advantage 1

.....

.....

.....

Advantage 2

.....

.....

.....

(4)

(Total 10 Marks)



